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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,533	08/30/2000	Erich Vogler	4796-20	2416

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EXAMINER

RINEHART, KENNETH

ART UNIT	PAPER NUMBER
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3749

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,533

Applicant(s)

VOGLER ET AL.

Examiner

Kenneth B Rinehart

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12, 13, 15, 17, 18 and 21 is/are rejected.
- 7) ☒ Claim(s) 8-11, 14, 16, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/27/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the wherein all four walls of the flow duct have a first wall section having first nozzles, the first wall sections being arranged in a peripheral direction against the rotating flow in each case at a start of the wall and at a distance from the first wall section of an adjacent wall, wherein the nozzles of all four walls lie in a common injection plane must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 2, 12, 13, 18, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Samejima et al (06272836). Samejima et al shows a flow duct having four walls in opposing wall pairs and a transition region from a combustion chamber of the incineration plant to the flue-gas outlet; and a plurality of nozzles for media which can be emitted as a jet (fig. 1, fig. 2), the nozzles being arranged in an injection plane on two opposite walls defining the flow duct and

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having a wall width b (fig. 1, fig. 2), the nozzles including first nozzles oriented in a row in each case in at least one first wall section of the two opposite walls so that the first nozzles inject a jet into the injection plane, wherein the injected jet and the wall form an angle γ lying in the injection plane the angle γ being at least approximately 90 degrees, a sum L of lengths l of the first wall sections being at least $0.4b < L < 0.8b$ and the at least one wall section of the one wall being diagonally opposites the at least one first wall section of the opposite wall, wherein the opposite walls each have a first wall section, the first wall sections, with a center longitudinal axis of the flow duct as an axis of symmetry, being centrosymmetrically opposite one another and defined on one side by the adjacent wall (fig. 2), wherein all four walls of the flow duct have a first wall section having first nozzles, the first wall sections being arranged in a peripheral direction against the rotating flow in each case at a start of the wall and at a distance from the first wall section of an adjacent wall, wherein the nozzles of all four walls lie in a common injection plane (fig. 3, fig. 1), the nozzles are operative to emit jets of secondary air and recirculated flue gas (col. 3, lines 60-69), the injection plane lies in a region of a flame cover arranged in the transition region, the nozzles being arranged at least one of so as to pass through the flame cover and so as to be in walls laterally below the flame cover so that the nozzles cool the flame cover with injected jets (figures).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 3-7, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samejima et al (06272836) in view of Khinkis et al (5020456). Samejima et al discloses a flow duct having four walls in opposing wall pairs and a transition region from a combustion chamber of the incineration plant to the flue-gas outlet; and a plurality of nozzles for media which can be emitted as a jet (fig. 1, fig. 2), the nozzles being arranged in an injection plane on two opposite walls defining the flow duct and having a wall width b (fig. 1, fig. 2), the nozzles including first nozzles oriented in a row in each case in at least one first wall section of the two opposite walls so that the first nozzles inject a jet into the injection plane, wherein the injected jet and the wall form an angle γ lying in the injection plane the angle γ being at least approximately 90 degrees, a sum L of lengths l of the first wall sections being at least $0.4b < L < 0.8b$ and the at least one wall section of the one wall being diagonally opposite the at least one first wall section of the opposite wall, wherein the opposite walls each have a first wall section, the first wall sections, with a center longitudinal axis of the flow duct as an axis of symmetry, being centrosymmetrically opposite one another and defined on one side by the adjacent wall (fig. 2), wall sections one of diagonally opposite one another and centrosymmetrically opposite one another have approximately a common length (fig. 2). Samejima et al discloses applicant's invention substantially as claimed with the exception of and further comprising second nozzles arranged in each case in the injection plane in at least one second wall section of the two opposite walls so that for an angle B lying in the injection plane between the jets injected from the first and the second nozzles $B > 0$, the angle B , $20 < B < 50$, the at least one second wall section of the one wall is diagonally opposite the at least one second wall section of the opposite wall, to produce a rotating vortex, each of the two opposite walls has a first wall section and a second

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wall section, the first and the second wall sections, with a center longitudinal axis of the flow duct as an axis of symmetry, in each case being centrosymmetrically opposite one another and defined on one side by the adjacent wall, wherein each of the two opposite walls has at least two first wall sections so as to produce at least two vortices rotating in opposite directions. Khinkis et al teaches and further comprising second nozzles arranged in each case in the injection plane in at least one second wall section of the two opposite walls so that for an angle B lying in the injection plane between the jets injected from the first and the second nozzles $B > 0$, the angle B , $20^\circ < B < 50^\circ$ (fig. 3), the at least one second wall section of the one wall is diagonally opposite the at least one second wall section of the opposite wall (right and left sides of fig. 3), to produce a rotating vortex, each of the two opposite walls has a first wall section and a second wall section, the first and the second wall sections, with a center longitudinal axis of the flow duct as an axis of symmetry, in each case being centrosymmetrically opposite one another and defined on one side by the adjacent wall (fig. 3), wherein each of the two opposite walls has at least two first wall sections so as to produce at least two vortices rotating in opposite directions (fig. 3) for the purpose of improving mixing, temperature, and composition uniformity. It would have been obvious to one of ordinary skill in the art to modify Samejima by including and further comprising second nozzles arranged in each case in the injection plane in at least one second wall section of the two opposite walls so that for an angle B lying in the injection plane between the jets injected from the first and the second nozzles $B > 0$, the angle B , $20^\circ < B < 50^\circ$, the at least one second wall section of the one wall is diagonally opposite the at least one second wall section of the opposite wall, to produce a rotating vortex, each of the two opposite walls has a first wall section and a second wall section, the first and the second wall sections, with a center

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longitudinal axis of the flow duct as an axis of symmetry, in each case being centrosymmetrically opposite one another and defined on one side by the adjacent wall, wherein each of the two opposite walls has at least two first wall sections so as to produce at least two vortices rotating in opposite directions as taught by Khinkis et al for the purpose of improving mixing, temperature, and composition uniformity so that NOX emissions are reduced and clean air regulations are met.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samejima et al (06272836) in view of Breen et al (5078064). Samejima et al discloses a flow duct having four walls in opposing wall pairs and a transition region from a combustion chamber of the incineration plant to the flue-gas outlet; and a plurality of nozzles for media which can be emitted as a jet (fig. 1, fig. 2), the nozzles being arranged in an injection plane on two opposite walls defining the flow duct and having a wall width b (fig. 1, fig. 2), the nozzles including first nozzles oriented in a row in each case in at least one first wall section of the two opposite walls so that the first nozzles inject a jet into the injection plane, wherein the injected jet and the wall form an angle γ lying in the injection plane the angle γ being at least approximately 90 degrees, a sum L of lengths l of the first wall sections being at least $0.4b < L < 0.8b$ and the at least one wall section of the one wall being diagonally opposites the at least one first wall section of the opposite wall, wherein the opposite walls each have a first wall section, the first wall sections, with a center longitudinal axis of the flow duct as an axis of symmetry, being centrosymmetrically opposite one another and defined on one side by the adjacent wall (fig. 2), wall sections one of diagonally opposite one another and centrosymmetrically opposite one another have approximately a common length (fig. 2). Samejima et al discloses applicant's

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invention substantially as claimed with the exception of the nozzles are annular gap nozzles.

Breen et al teaches the nozzles are annular gap nozzles (fig. 4) for the purpose of reducing NOX emissions. It would have been obvious to one of ordinary skill in the art to modify Samejima by including the nozzles are annular gap no as taught by Breen et al for the purpose of reducing NOX emissions so that clean air regulations are met.

Allowable Subject Matter

Claims 8-11, 14, 16, 19, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of art with respect to furnaces in general: Miyata (526421), Krippene et al (3788796), Rennert et al (4810186), Derbridge et al (4570551), Wada et al (5113208). Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 703-308-1722. The examiner can normally be reached on 7:30-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBR



Kenneth Rinehart

Patent Examiner

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